

## CLAIMS

What is claimed is:

1. A method of optically scanning a vehicle wheel rotatable about a stationary axis, comprising the steps of:

emitting at least one light beam from at least one given position onto the surface of the vehicle wheel;

at least at one given position, receiving at least one beam reflected by the surface of the vehicle wheel corresponding to the at least one light beam; and

determining dimensions and positions of constituent parts of the vehicle wheel based on the respective directions of the at least one emitted light beam and the at least one reflected beam.

2. A method according to claim 1, wherein the rim profile of the vehicle wheel is scanned with the at least one emitted light beam and the associated reflected light beam.

3. A method according to claim 1, wherein at least two mutually opposite surface locations, one on the inside of the wheel and the other on the outside of the wheel, are scanned, and the thickness of the wheel material is ascertained in a computer-aided procedure based on the positional data related to the scanned locations.

4. A method according to claim 1, wherein rim flanges are scanned and the shape or the profile of the respective rim flange is determined based on the scanned data.

5. A method according to claim 1, wherein the wheel type is based on the scanned data of the wheel constituent parts.

6. A method according to claim 1, wherein balancing weights needed to be fixed to the rim is detected by the scanning operation.

7. A method according to claim 1, wherein the rotary angle position of a tire inflation valve is detected by scanning the wheel surface.

8. A method according to claim 7, wherein the rotary angle position of the tire inflation valve is determined as a reference position for rotary angle positions on the vehicle wheel.

9. A method according to claim 7, wherein the rotary angle positions of wheel spokes, in particular in the region of the spoke ends which are connected to the rim, are detected.

10. An apparatus for optically scanning a vehicle wheel affixed with a stationary axis to a measuring shaft of a wheel balancing machine, comprising:

- at least one light source for emitting a light beam on to the surface of the wheel;
- a receiver that moves together with the light source, for receiving a light beam reflected from the wheel surface; and

- an evaluation device, coupled to the receiver and a position sensor, for specifying the positions of the light source and the receiver;

wherein the evaluation device ascertains dimensions and positions of constituent parts of the vehicle wheel using a computer-aided procedure based on the respective directions of the emitted beam and the reflected beam.

11. An apparatus according to claim 10, wherein at least two sensor devices are provided, each of the sensors includes a light source and a receiver, for scanning the inside of the wheel and the outside of the wheel.

12. An apparatus according to claim 11, wherein the sensor device for scanning the outside of the wheel is fixed to a wheel guard hood of the wheel balancing machine.

13. An apparatus according to claim 12, wherein the vehicle manufacturer determined based on the scanned data related to the wheel constituent parts by accessing a data bank containing information related to the wheel constituent parts and associated vehicle manufacturer.